

WHAT IS CLAIMED IS:

1. A method of transmitting digital information over a synchronous network, the method comprising:

5 a) processing source information at a first rate to generate digital information;

b) clocking the digital information into the synchronous network at a second rate, the second rate different than the first rate;

c) receiving the digital information over the synchronous network; and

10 d) sample rate converting the source information as a function of the first rate and the second rate.

2. The method of claim 1, wherein the first rate is a different frequency than the second rate.

15 3. The method of claim 1, wherein a) comprises:

counting the first rate to generate a source counter value (CV(m)); and

transmitting the source counter value (CV(m)) as part of the digital information.

20 4. The method of claim 1, wherein c) comprises buffering the digital information.

5. The method of claim 1, wherein b) comprises inputting at least two source information words into a network frame for transmittal over the synchronous network.

5 6. The method of claim 1, further comprising e) processing the source information that has been sample rate converted to produce synthesized source information.

7. The method of claim 1, further comprising:

10 e) transmitting sample rate converted source information over the synchronous network;

f) receiving the sample rate converted source information; and

g) processing the sample rate converted source information to produce synthesized source information.

8. The method of claim 1, wherein d) comprises ignoring a portion of the source information as a function of the first rate and the second rate.

9. The method of claim 1, wherein d) comprises sample rate converting the first rate to the second rate.

10. The method of claim 1, further comprising:

e) processing additional source information in synchronism with the second rate to produce additional digital information;

f) clocking the additional digital information into the synchronous network at the second rate;

g) receiving the additional digital information over the synchronous network; and

h) processing the additional digital information absent sample rate conversion to produce synthesized source information.

11. A method of processing source information for transmission over a synchronous network, the method comprising:

a) sampling source information at a source sample rate (F_{si});

b) clocking the source information into a network frame on the synchronous network at a network master clock rate (F_n);

c) counting the frequency of the source sample rate (F_{si}) during sampling

d) producing a source counter value ($CV(m)$) as a function of c); and

e) clocking the source counter value ($CV(m)$) into the network frame at the network master clock rate (F_n).

12. The method of claim 11, further comprising:

f) transmitting the network frame over the synchronous network; and

g) sample rate converting the source information to the network master clock rate (F_n) as a function of the source counter value ($CV(m)$) and the network master clock rate (F_n).

13. The method of claim 11, wherein b) comprises inputting at least two source information words into the network frame.

14. The method of claim 11, further comprising f) buffering the source information and the source counter value (CV(m)).

15. The method of claim 11, wherein a) comprises generating the sample rate with a source clock, the source clock operating at a different frequency than the frequency of the network master clock rate (F_n).

16. The method of claim 11, wherein b) comprises clocking redundant source information into the network frame as a function of the source sample rate (F_{si}) and the network master clock rate (F_n).

17. The method of claim 11, wherein a ratio of the source sample rate (F_{si}) and the network master clock rate (F_n) is less than the number of source information words within the network frame.

18. The method of claim 11, wherein a ratio of the source sample rate (F_{si}) and the network master clock rate (F_n) is equal to the number of source information words within the network frame.

19. A method of processing source information transmitted over a synchronous network as digital information, the method comprising:

a) counting the frequency of a network master clock rate (F_n) to produce a network counter value (NCV);

b) extracting a source counter value ($CV(m)$) from digital information transmitted over the synchronous network, the source counter value ($CV(m)$) representing the sample rate of the source information; and

c) sample rate converting the source information as a function of the network counter value (NCV) and the source counter value ($CV(m)$).

20. The method of claim 19, further comprising d) processing the source information that has been sample rate converted to generate synthesized source information.

21. The method of claim 19, further comprising:

d) transmitting the sample rate converted source information over the synchronous network to a processing module; and

e) generating synthesized source information with the processing module.

22. The method of claim 19, wherein c) comprises ignoring a portion of the source information as a function of the source counter value ($CV(m)$) and the network counter value (NCV).

23. The method of claim 19, wherein c) comprises sample rate converting the source information to the network master clock rate (F_n).

5 24. The method of claim 19, wherein c) comprises estimating a ratio of a the network master clock rate (F_n) and a source sample rate (F_{si}) as a function of the network counter value (NCV) and the source counter value (CV(m)).

10 25. A system for transmitting digital information at various sample rates over a synchronous network, the system comprising:

a source node operable to generate digital information, the digital information comprising source information sampled at a first rate; and

15 a synchronous network coupled with the source node, the synchronous network operable at a second rate different than the first rate, the digital information clocked into the synchronous network at the second rate absent sample rate conversion.

20 26. The system of claim 25, further comprising a sink node coupled with the synchronous network, the sink node operable to process digital information received over the synchronous network to generate synthesized source information.

27. The system of claim 26, wherein the sink node comprises an output stage coupled with a processing module, the output stage operable to sample rate convert the source information from the first sample rate to the second sample rate and the processing module operable to process the sample rate converted source information and generate synthesized source information.

28. The system of claim 25, further comprising an output stage coupled with the synchronous network, the output stage operable to sample rate convert the source information received over the synchronous network to the second rate and input sample rate converted source information into the synchronous network.

29. The system of claim 28, further comprising a sink node coupled with the synchronous network, the sink node operable to receive the sample rate converted source information over the synchronous network and generate synthesized source information.

30. The system of claim 25, wherein the source node comprises a source and an input stage, the source operable to provide source information and the input stage operable to generate the digital information as a function of the source information.

31. The system of claim 25, wherein the digital information is clocked into the synchronous network in a network frame, the network frame comprising at least two source information words.

32. The system of claim 25, wherein the first rate is a source sample rate (F_{si}) generated by a source clock.

33. The system of claim 25, wherein the second rate is a network master clock rate (F_n) generated by a network master clock.

34. The system of claim 25, wherein the digital information further comprises a source counter value ($CV(m)$), the source counter value ($CV(m)$) representative of the first rate.

35. The system of claim 25, wherein the digital information is also clocked into the synchronous network at the second rate following sample rate conversion to the second rate.